

Fathom

The background of the entire page is a photograph of a ship's deck. In the foreground, several crew members in dark uniforms and helmets are visible. One person in a yellow jacket stands on the left. In the center, a person is pushing a yellow and black striped cart. To the right, the nose of a grey aircraft, marked with the number '201', is partially visible. The ship's superstructure, including radar masts and antennas, rises in the background under a hazy sky.

The Naval Safety Center's Afloat Magazine

July-September 2003

FOD On Deck

Don't Tap Into Your Berthing Light

Sometimes It's the Simple Things...

Fathom

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July-September 2003

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Mishaps waste time and resources, and they take our Sailors and Marines and civilian employees away from their units and workplaces and put them in hospitals, wheelchairs, and coffins. Mishaps ruin equipment and weapons, and diminish readiness.

This magazine's goal is to help make sure personnel can devote their time and energy to the mission, and that any losses are from enemy action, not from our own errors, shortcuts or failure to manage risk.

We believe there is only one way to do any task: follow the rules and take precautions against hazards. Combat presents its own inherent hazards; we must learn to work right before engaging in combat so we do not compound its dangers.

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USS *Carl Vinson* (CVN 70) flight deck Sailors make sure aircraft are securely tied down during a squall while the ship was operating in the Philippine Sea in April. Walking on the deck during such a rain can be hazardous because the mixture of burned jet fuel and rain-water turns the deck into a slippery surface. *Photo by PHAN Dustin Howell*

Back Cover: Aboard the amphibious command ship USS *Blue Ridge* (LCC 19), SK3 Thomas R. Lawlor bandages a simulated facial wound on FN Shaun Green during general quarters training while the ship was participating in a joint military exercise in the Northern Mariana Islands. *Photo by PHAN Kerri Lynn Ackman*

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For the 4th consecutive year, this Pacific Fleet ship's crew proved when it comes to safety, they're tops on the water-front. *By JO1(SW) Danny Hayes*

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Despite high technology found aboard today's ships, traditional signal flags are still a critical means of communication for Navy ships and for international maritime operations. *By BMCS(SW/AW) Danny Tidwell*

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Falling six decks down an escape trunk is harrowing and almost always results in critical injury, or worse. It's particularly frustrating when such a fall is caused by simple negligence. *By FCC(SW) Barry G. Hardman*

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They cost a little more, but in many cases the new ear plugs fit more snugly than the traditional, 20-year-old Navy standard ear plugs.

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Japan-based aircraft carrier uses the ship's intranet to make available to all hands instructions governing electrical awareness, and to educate the crew about electrical safety. *By JO2 Mark Elrod*



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FOD on Deck Found

*By Ltjg. Barton Morrison,
HSL-44, Detachment 3*

There I was at Naval Station Norfolk air operations, listening intently while my helicopter aircraft commander (HAC) was giving the NATOPS brief. We discussed our fly-on flight, a straight shot 70 miles to the southeast from Norfolk to our ship.

It had been more than a month since we had been embarked in the ship. We thus discussed all pertinent contingencies for flying to the boat, including what approach we would make to the deck, lost communications, loss of tail-rotor drive, and a multitude of other possibilities. What wasn't discussed was what we would do if a large, solid aluminum plate flew through our helo's rotor arc.

We took off from Norfolk on time and made our way southeast, immediately picking up the ship's TACAN: Amazingly, they were right where they were supposed to be. The weather was beautiful and our road was clear, so we flew straight to the ship.

We made it overhead with little difficulty and got a green deck for our approach to the Ticonderoga-class cruiser's deck. We completed the approach with little trouble and positioned the aircraft over the trap in a five-foot hover. My eyes were scanning the line-up lines so I could position us directly over the trap, but in my periphery I saw something that should not have been there. A large, haze-gray, rectangular plate seemed to rise from the hangar door, swoop haphazardly down under the rotor arc, and crash underneath the helicopter's nose. I immediately asked my copilot, "What was that?" To which he responded, "Just land!"

After I landed the aircraft in the trap, the flight-deck director sent a flight-deck crewman to retrieve the FOD from under our helo's nose. We then saw just how large a piece of FOD we had so narrowly avoided. Once we completed shutdown, our crew entered the hangar to get a closeup of the plate: It was a two-feet-by-eight-inch piece of solid aluminum and weighed about 10 lbs. Our post-

flight inspection found no damage to our aircraft, so we determined the FOD had passed just under the rotor arc without hitting the aircraft.

The subsequent investigation revealed that, while in port, ship's company had completed some hangar-door maintenance but didn't properly secure this particular piece of aluminum back to the top of the hangar-door track, an oversight which almost resulted in a major [class A] mishap. Had the aluminum plate made contact with the rotor itself, aircraft damage would most likely have been catastrophic and injured or killed everyone on that flight deck, including our helo crew.

That day's close call taught us always to check with the ship to see if any flight deck maintenance had been done, and, if so, to make sure QA checks were conducted and the flight deck is 100 percent ready. Yes—our helo flight crew had briefed and was prepared for just about any contingency that day, yet we momentarily overlooked the fact that naval aviation has myriad dangers: They aren't always the ones for which your crew is prepared. ☹️



Photo by PH2 Michael D. Kennedy

in Time: Just Land!

My eyes were scanning the line-up lines so I could position us directly over the trap, but in my periphery I saw something that should not have been there.



The 2002 Surface Ship Safety Award Winners

The Chief of Naval Operations recently announced the winners of the Navy Afloat Safety Awards for the 2002 cycle. Ships receiving the award are chosen for their outstanding contributions to fleet readiness, increased morale, and efficient, economical use of resources through safety. Complimenting their outstanding safety records, ships selected must also have aggressive safety programs that contribute significantly to mishap prevention and setting the highest standards of safety.

Category

Winner

Submarine Repair (AS)

USS *Frank Cable* (AS 40)

Commander Naval Surface Force, U.S. Atlantic Fleet

Cruiser (CG)

USS *Vicksburg* (CG 69)

Destroyer (DD, DDG)

USS *Cole* (DDG 67)

Frigate (FFG, FFG (NRF))

USS *Elrod* (FFG 55)

Amphibious (medium or small)

USS *Wasp* (LHD 1)

Combat Logistics (large)

USS *Carter Hall* (LSD 50)

Support (ARS)

USS *Grapple* (ARS 53)

Mine Countermeasures (MCM/MHC)

USS *Defender* (MCM 2)

Patrol Craft (PC)

USS *Firebolt* (PC 10)

Commander Naval Surface Force, U.S. Pacific Fleet

Cruiser (CG)

USS *Vincennes* (CG 49)

Destroyer (DD, DDG)

USS *Fitzgerald* (DDG 62)

Frigate (FFG, FFG (NRF))

USS *Rodney M. Davis* (FFG 60)

Amphibious (large)

USS *Bonhomme Richard* (LHD 6)

Amphibious (medium or small)

USS *Pearl Harbor* (LSD 52)

Combat Logistics (large)

USS *Sacramento* (AOE 1)

Support (ARS)

USS *Salvor* (ARS 52)

Patrol Craft (PC)

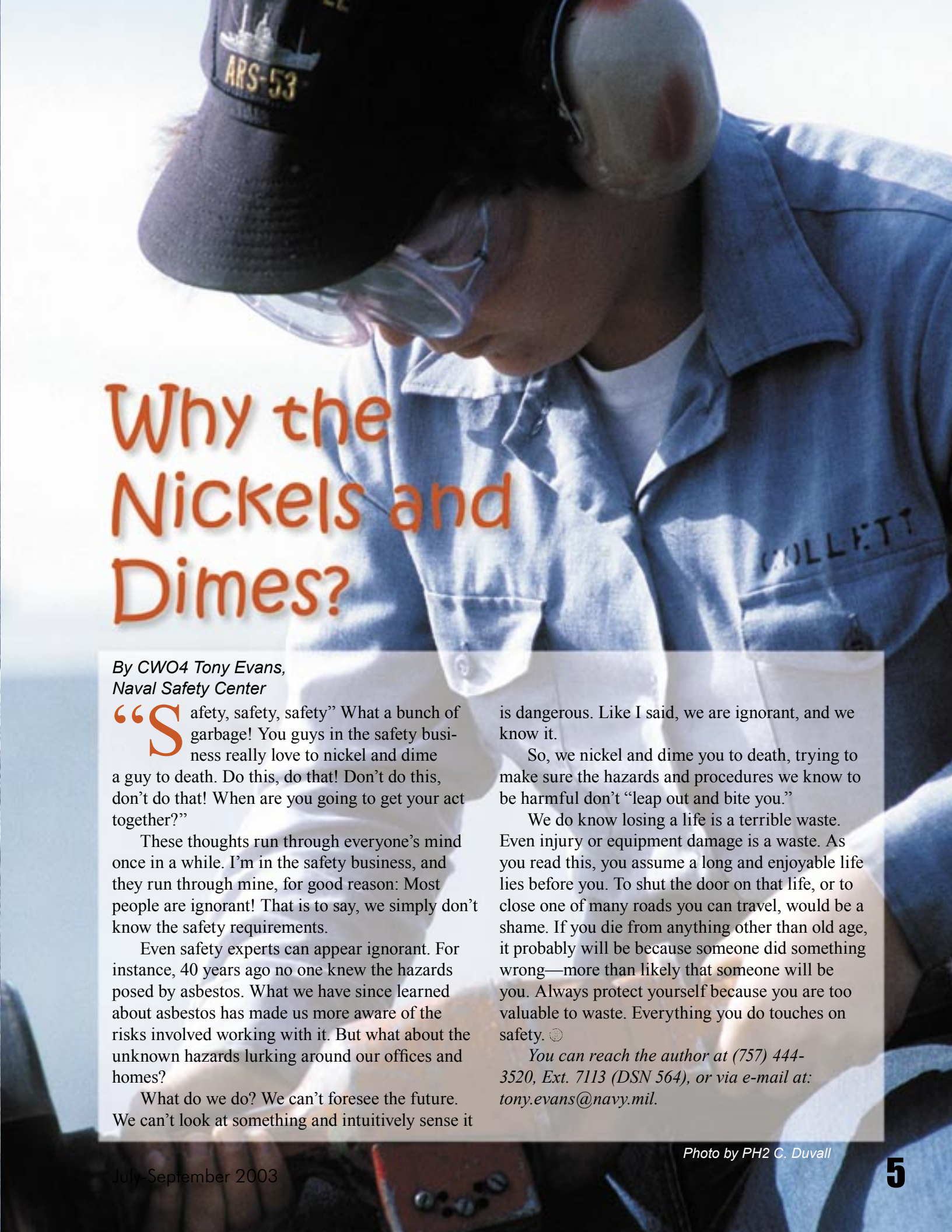
USS *Hurricane* (PC 3)

USS *Sacramento* won her 5th consecutive CNO award, USS *Bonhomme Richard* her 4th consecutive CNO award, and USS *Salvor* won her 3rd consecutive CNO award. USS *Grapple* and USS *Firebolt* each won their 2nd consecutive CNO award.

The Navy's Military Sealift Command (MSC) also recognized three MSC ships as winners of the MSC Surface Ship Safety Award for the Oct. 1, 2001, to March 31, 2003, competitive period. MSC ships and crews earning the award exhibit consistently excellent safety records, and employ proactive accident prevention programs.

Fleet oiler USNS *Leroy Grumman* (T-AO 195), combat stores ship USNS *San Jose* (T-AFS 7), and fleet ocean tug USNS *Navajo* (T-ATF 169) have been selected from 37 eligible ships as the command's leaders in safety.

MSC also recognized three other ships, fleet oiler USNS *John Ericsson* (T-AO 194), ammunition ship USNS *Mount Baker* (T-AE 34) and hospital ship USNS *Comfort* (T-AH 20) as runners-up for the Surface Ship Safety Award. ☺



Why the Nickels and Dimes?

By CWO4 Tony Evans,
Naval Safety Center

“Safety, safety, safety” What a bunch of garbage! You guys in the safety business really love to nickel and dime a guy to death. Do this, do that! Don’t do this, don’t do that! When are you going to get your act together?”

These thoughts run through everyone’s mind once in a while. I’m in the safety business, and they run through mine, for good reason: Most people are ignorant! That is to say, we simply don’t know the safety requirements.

Even safety experts can appear ignorant. For instance, 40 years ago no one knew the hazards posed by asbestos. What we have since learned about asbestos has made us more aware of the risks involved working with it. But what about the unknown hazards lurking around our offices and homes?

What do we do? We can’t foresee the future. We can’t look at something and intuitively sense it

is dangerous. Like I said, we are ignorant, and we know it.

So, we nickel and dime you to death, trying to make sure the hazards and procedures we know to be harmful don’t “leap out and bite you.”

We do know losing a life is a terrible waste. Even injury or equipment damage is a waste. As you read this, you assume a long and enjoyable life lies before you. To shut the door on that life, or to close one of many roads you can travel, would be a shame. If you die from anything other than old age, it probably will be because someone did something wrong—more than likely that someone will be you. Always protect yourself because you are too valuable to waste. Everything you do touches on safety. ☺

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Photo by PH2 C. Duvall

Practice Hazardous Mat

By HMCS (SS/SW) Richard Flannery

Hazardous waste proliferation has become a serious Navy problem. Hazmat harms the environment, is unsafe and difficult to handle, and disposal is extremely expensive. You can be instrumental in helping the Navy solve the problem by recognizing its seriousness and taking immediate action within your command to minimize the generation of hazardous waste.

An effective hazardous-waste-minimization program must include active hazmat life-cycle management before the material turns into hazardous waste. One of the best and highest-payback ways of doing this is to establish a hazmat shelf-life-extension management program.

Some 70 percent of hazardous material turned in for disposal is unused and in original packaging. It simply reached the end of its designated shelf-life before being used. Your command can do a lot to help the Navy change that situation.

All shelf-life material is either Type I or Type II. While about 10 percent is Type I and cannot be extended, 90 percent, on the other hand, is Type II with an extendable life. Instead of automatically disposing of Type II material when its shelf-life expires, you should make every effort to extend its life until all the material is used.

Shelf-life extension programs are the single most neglected aspect of shelf-life management. Organizations (users and suppliers) generally do not conduct in-house inspections or tests to extend their material's shelf-life. They either don't extend shelf-life at all, or they rely on the monthly, DoD Quality Status Listing (QSL) to inform them what shelf-life material can be extended and for how long.

When the QSL is used, extension efforts often consist solely of re-marking material

with the new expiration dates. There is nothing wrong with that and it needs to be done. However, the QSL primarily lists only DLA-managed items requiring laboratory testing. Items requiring only visual checks are not listed, nor are GSA-managed items. There is a DoD initiative underway to extend the QSL



Flammable Symbol



Environmental Danger

Material Shelf-life Management

into a DoD listing that will include material managed by DLA and all military services. But, it will be some time before that initiative is fully integrated, and it never will list items only requiring visual checks for extensions.

In-house inspections and tests are good enough for most of your material. However, it is often difficult for Sailors to find descriptions of specific inspections or tests required to extend the shelf-life of particular items,

and there is no single source of test information.

Individual product specifications are a primary source of inspection and test information. Also, Material Safety Data Sheets (MSDS) and Federal Standard 793 guidelines are other sources having guidance for tests to be conducted for extending a particular product's shelf-life. Shelf-life extension inspections and tests on hazardous material must rely on locally developed instructions and procedures. In the absence of specific guidelines, use old-fashioned common sense. Shelf-life extension tests for most Type II material are not complicated, do not require laboratory testing and can be done on the spot by your hazmat technician with NEC 9595 (usually your SK). The extension tests usually are nothing more than visual checks for damage or deterioration.

Further assistance with shelf-life questions and problems is available from Navy and regional shelf-life coordinators, available at the major CONUS homeports or bases to assist naval commands in their area. Overseas-based ships should contact their area or regional Fleet and Industrial Supply Center (FISC) representative for assistance in lengthening hazmat shelf-life. They can help with any aspect of shelf-life management. Their goal is to reduce hazardous waste disposals by increasing consumption of hazardous materials, and shelf-life assistance is a big part of that goal.

Shelf-life management also reduces disposal costs (which usually are higher than the cost of the product itself) and minimizes purchasing additional hazardous material to replace expired, but still useable, material. ☺



This Is the Story of Ohms

*By LCdr. Walter Banks,
Naval Safety Center*

We all believe Sailors love life and are concerned with not just their own well-being, but also with that of their shipmates. That's why the Navy spends great capital and time educating Sailors to perform their work without mishaps. However, after reading reports about numerous recent electrical-shock mishaps, I wonder if those who work with electrical equipment and systems are aware of available training and required precautions for working with energized equipment and circuits.

We should be concerned about the high number of electrical shocks being reported from the fleet. I screen these reports and look for answers as to why the Navy has so many electrical-shock mishaps. I won't give you a reason just yet, but I want to share with you some recent incidents. Digest them and ask yourself how you can improve electrical safety in your work area. Remember, safety is an all-hands responsibility, "24 hours a day," 365 days a year. Following are some condensed reports from the fleet.

➤ AN HT2 delivered a new welder to the electrical tool-issue room to have the proper plug installed for shipboard use. The next day, tool-issue personnel returned the TIG (tungsten inert gas) welder to the HT2 without a completed safety tag. Three days later, the HT2 and a shipmate tried to use the welder without properly grounding it. When the HT2 energized the welder to check its zero-setting, he found it still was not grounded. His co-worker then grabbed the grounding cable to try and ground it to a piece of aluminum. This created a minor arc so the petty officer grabbed

the grounding strap, trying to "adjust" it for a good ground. He got a shock: The jolt was strong enough to knock him backward. He was momentarily disoriented and his hands were reddened. Both Sailors realized it was time to return the welder to the tool-issue room and have it properly checked and tagged.

➤ An ET3 was troubleshooting an antenna control unit (ACU) that was connected to both an AC and a DC power source. While troubleshooting, he removed one of the ACU's bottom plates for a maintenance check. He didn't replace the plate when done, leaving exposed a 208-volt AC terminal. He then disconnected the cannon plug in the back of the ACU to check DC input voltage, but didn't secure the terminal. After completing his DC input check, the ET3—working in a confined space—held the control unit with one hand while reconnecting the plug with the other. Once the plug was connected, the hand with which he was holding the unit came into contact with 208 volts AC and he got quite a shock!

➤ Meanwhile, an AT2 was calibrating an altimeter tester on a workbench. He felt a shock while plugging the tester into the workbench as his arm was resting on the altimeter tester's metal casing. Chalk this one up as a mystery because he dutifully returned the altimeter tester to electrical tool-issue for safety checks. The gear was cleared by the AIMD QA department and given a clean bill of health.

These are but a few examples of Sailors shocking themselves. No matter how much you concentrate on completing your work, you cannot

take anything for granted about your safety and well-being.

Do you think you can determine why each of the aforementioned mishaps took place?

With the HT2 and his TIG welder: The electrical tool-issue room had released equipment before properly checking it. The HT2 also failed to follow electrical safety procedures when he energized the welding machine before making sure it was properly grounded. There also appears to have been a lack of supervision. Both he and his supervisor should review NSTM 300, Electric Plant-General.

The petty officer working on the antenna control unit should have had someone working with

him, and he should have secured and tagged out all power sources before working on the ACU. He, too, should review NSTM 300.

As for the AT2 who got shocked with the altimeter tester: he completed a path for current when his arm touched the case and he simultaneously energized the equipment. He did not adhere to standard electrical safety precautions for portable electrical equipment in Chapter C9, paragraph C0903, of OpNavInst 5100.19D (change 1).

When it comes to working with electricity, respect “ohm” and “he” will respect you! ☺

Photo by Matthew J. Thomas



DON'T ATTEMPT TO PLUG YOURSELF IN



ered many bunk lights had been illegally modified when crew members installed electrical receptacles for personal electronic gear, ranging from small fans to televisions and VCRs. These “Sailor-alts” were done with varying degrees of sophistication, but all presented shock hazards to individuals and the ship.

After tagging out all the compartment bunk lights, electrician’s mates identified and repaired each modified light. Repairs took a month, and each altered bunk light was photographed to document the range and varied skills used for the unauthorized alterations. [See photos on next page.]

Once repairs were done, *Abraham Lincoln* electrician’s mates organized the photos into a presentation for the

USS *Abraham Lincoln* (CVN 72) returned in May from a record-breaking, nine-month-and-16-day deployment. Before departing last year and while in work-ups preparing for the deployment, one of the ship’s berthing compartments was having problems with numerous individual bunk lights: Many bunk lights kept blowing fuses.

Electricians no sooner would replace fuses than they would blow again. Electricians discov-

er the carrier’s chief petty officers’ mess. The presentation was designed to help CPOs identify future crew attempts to alter bunk lights.

Although many hours were needed to correct these unauthorized modifications, the plug-installations caused no mishaps. Other Sailors making similar modifications to their bunk lights might not be so lucky.

Let electrician’s mates do your electrical work, and follow established procedures. ☺



Here a Sailor just cut off the female end of a cheap extension cord and tapped into a bunk light's voltage input line.



A single wall outlet was used for this dangerous supplemental plug showing numerous exposed wires.



Although appearing sturdy and showing some ingenuity, this double wall outlet didn't even have a cover.



This photo shows the results of arcing where a Sailor tapped into the voltage lines of a ballast transformer.



A Sailor tried to recess a plug by cutting a hole into the protective plate covering the input power cord.



A combination of "spaghetti" wiring and electrical tape, this contraption even looks forbidding.



This is a mixture of some of the jerry-rigs to bunk lights found shortly before the ship deployed.

USS Enterprise Trains for

By JOSN Mark A. Wagner,
USS Enterprise Public Affairs Office

USS Enterprise (CVN 65) shipboard firefighters rescued a 300-pound shipyard worker during the aircraft carrier's recently completed availability. The man had complained of chest pains while working in a machinery spaces deep in the bowels of the ship.

This rescue was significant because the Sailors had to use their rope-and-confined-space training to lift him from the engineering plant, yet only a handful of the crew was trained to conduct such a vertical rescue.

"The shipyard showed us four instances where we had to rescue out of a void or trunk," said DCC(SW/AW) Brian E. Brooner, the damage control division's leading chief petty officer. "On board a ship with hazardous working environments, it's important to have a well-trained rescue team."

These four potential scenarios indicated the ship needed to qualify more Sailors to be able to conduct such unique rescues. Chief Brooner turned to PRISM Technical Rescue Training, Inc., a firm that had conducted training aboard *Enterprise* before her previous deployment. This encore "deep" rescue training—it centered around vertical rescue from a trunk, void, or any other confined space—taught the ship's firefighters how to rescue someone using ropes and stretchers, since it would be the firefighters who would be called to conduct such a rescue. The training is fairly new to Navy ships.



Photo by PH3 Butler Day

DC1(SW) Elis Robles (left) and DC2 Brendan B. Scott watch the lines as they practice bringing an injured Sailor from the lower decks of USS *Enterprise* (CVN 65) topside. As part of the ship's fire and rescue team, learning deep rescue techniques is becoming a necessary part of shipboard training.

"Deep" Rescue

It takes precise movements and quick action to bring a Sailor from the lower decks of a ship topside in case of an emergency. USS *Enterprise* (CVN 65) damage control division is training to make these types of rescues second nature.



Photo by PH3 Butler Day

Sailors participating in the training received eight hours of classroom instruction followed with 32 hours of hands-on training to tie it all together, and during which they demonstrated proficiency by using required equipment and participating in rescue procedures.

“Most of the stuff we do is hands-on,” said Chief Brooner. “They [*instructors*] show pictures and videos on how to do it, but the only way you know how to do it is by doing it.”

“You can’t do this kind of job reading a book,” said company owner Phil Perry, who also instructs. He and the other trainers did not just stress technical knowledge: Safety was also always at the forefront, being part of both the classroom and hands-on scenario training.

“We learned how to rescue safely . . . operational risk management is big in the Navy, so the training we went through applies to safety first,” said DC1(SW) B.J. Berryhill, the damage control division’s leading petty officer.

Sailors who completed the course were certified in Rope Rescue I and Confined Space Rescue by the Virginia Department of Fire Programs.

“The training helps us do any kind of rescue,” said Petty Officer Berryhill. “Plus, it will benefit those who plan to stay in the Navy . . . or those who choose to get out and use the certification they received in the civilian sector.”

Berryhill described the training as being different from anything he had ever experienced. “None

of the other ships [*I was assigned to*] offered me this kind of training,” he said. “In the past, we pretty much did it [*deep rescue*] however [*best*] we could do it.”

Chief Brooner agreed. “In the old days, we used to just pull them out of the trunk, sometimes injuring the person. Now we have the technology and training to make it more stable and less harmful,” he said.

“The training helps us do any kind of rescue,” said Petty Officer Berryhill.

Both *Enterprise* crew members agreed the PRISM training was top-notch and should be expanded to include more of the fleet. In fact, Chief Brooner says, “PRISM’s training should be mandatory training on all the ships.”

Petty Officer Berryhill summed it up with, “I would highly recommend all ships in the fleet go through the training that PRISM offers. It helps us do the evolution safer, quicker, more efficiently and, in the end, save someone’s life.” ☺

Note: Specific equipment requirements and deep-rescue procedures are found in NSTM 555, Chapter 7 (Vertical Entry) and in the SurfLant Damage Control Manual.

Safety Web Page Changes Focus for Carrier Sailors



By AS1 James A. Sparks,
USS Nimitz Safety Department

The USS *Nimitz* (CVN 68) safety department is using the ship's intranet to improve customer service and more efficiently distribute safety and environmental information to shipmates. With so much work now centered around computers, what better way to pass the word? The carrier also is offering to share this success with the fleet.

We looked at our current web page and determined it was, at best, mediocre and needed a major upgrade. After six months of work, the web page now seemingly has taken a life of its own.

Since the upgrade, what initially was a small project has become a full-time job: managing and regularly updating site information. However, it has been well worth the effort. The information we collect benefits the crew and the safety department Sailors. We now have an abundance of safety and

environmental information at our fingertips, which enables us to give customers accurate and timely answers to questions.

We also have concentrated on shifting our role from being “enforcers” to focusing on providing superior customer service and training resources to shipmates. Any safety department bears the primary responsibility of reducing workplace mishaps by educating crew members. Aboard *Nimitz*, we believe a crew educated about safety and mishap-prevention will be more conscious about how they work. This awareness will help preserve our most precious resource: the Sailor. Our website has become integral to providing much-needed education materials and information to shipmates.

Specifically, we have PowerPoint presentations, safety links, a list of all divisional and air-wing safety petty officers, a “safety petty officer in the spotlight,” safety forms, MSDSs for commonly used shipboard material, minutes from enlisted safety-committee meetings, our baseline industrial hygiene survey, an operational risk management page, video clips, and much more.

The site also provides information about aviation safety, asbestos, back injuries, electrical safety, environmental issues, ergonomics, gas-free engineering, hazard abatement, hazmat control, and many more topics.

Our door always is open for helping shipmates, but with the updated and expanded website, gathering safety and environmental information is only a few mouse-clicks away. This saves workcenters valuable time and contributes to workplace efficiency. We in the safety department also want to instill in our shipmates a positive attitude toward implementing safety measures.

We feel our web page easily could be adapted to any ship class. For our shipmates throughout the fleet who are interested in initiating a similar site for their command, a CD-ROM version of the *Nimitz* site is available by e-mailing safetylcpo@nimitz.navy.mil. ☺

USS *Bonhomme Richard* Nets 4th Safety Award

By JO1(SW) Danny Hayes,
USS *Bonhomme Richard* Public Affairs Office

USS *Bonhomme Richard* (LHD 6) Sailors demonstrated they are still among the best on the waterfront by winning the 2002 Pacific Fleet Surface Force Ship Safety Award. This is the ship's 4th consecutive such award.

"Safety always has been the number one priority in the ship," said ATC(AW/SW) Steve Dixon, the safety department's leading chief petty officer. "We're bringing standards up to a higher level in order to keep the ship on top."

Dixon said enlisted safety committee meetings enable his office to work with different shipboard workcenters to prevent mishaps by discussing potential hazards and new safety instructions. During such monthly meetings, division representatives discuss their individual safety concerns.

The ship's 2002 track-record testifies to the safety team's effectiveness: *Bonhomme Richard* launched 281 AV-8B Harrier combat sorties and spent 88 continuous days at sea without any major safety incidents.

The amphibious assault ship also transferred more than 10 million gallons of fuel during underway replenishments and received 750 loads via connected replenishments—all without major mishaps.

"We work hard [*at keeping the crew safe*] to win these awards," said BM1(SW) Timothy Satcher. "We don't, however, take it for granted. This isn't a safety department award. It's a BHR [*Bonhomme Richard*] award." ☺

Members of the crash-and-salvage crew aboard the amphibious assault ship USS *Bonhomme Richard* (LHD 6) watch an AV-8B Harrier make a vertical landing on the flight deck. The ship recently won its 4th consecutive ComNavSurfPac Ship Safety Award.




Photo by PH3 Chris Reynolds

We must acknowledge that sharing lessons learned from mishaps is crucial to promoting a safer and combat-ready Navy. One of the worst things we can do as a team is play, "I've got a secret."

It is our duty and responsibility
lessons learned with our shipmates





By being proactive and sharing experiences, we generate thoughts and discussions to aid our fellow Sailors.

as professionals to share experiences throughout the fleet.



www.safetycenter.navy.mil

Boatswain's Mates:







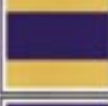










By BMCS (SW/AW) Danny Tidwell,
Naval Safety Center

The Navy uses many one-flag signals. Small vessels often do not maintain a constant signal watch in port and frequently rely on the petty officer of the watch to recognize some of these signals or at least find a signalman to interpret them. Of course, all boatswain's mates should at least know the signal flags, and their meanings, that follow:

Alfa. This is a square, swallow-tailed flag and is half white and half blue, with the swal-

low-tailed half being blue. Alfa indicates divers or underwater demolition personnel are in the water. If a numerical group follows the flag, the numbers indicate in hundreds of yards the radius within which personnel are working. The Alfa flag and the Bravo flag are the only two Navy signal flags having a swallow tail.

India. This is a square yellow flag with a black ball in its center. When flown in port and at the dip, India on an approaching ship indicates

U.S. Navy Signal Flags								
Flag	Name	Phonetic Pronunciation	Navy Meaning	International Meaning				
	Alfa	AL-fah	I have a diver down; keep well clear at slow speed.			India	IN-dee-ah	Coming alongside. I am directing course to port.
	Bravo	BRAH-voh	I am taking in, discharging, or carrying dangerous cargo.			Juliett	JEW-lee-ett	I am on fire and have dangerous cargo; keep clear.
	Charlie	CHAR-lee	"Yes" or "affirmative".			Kilo	KEY-loh	I wish to communicate with you.
	Delta	DELL-ah	I am maneuvering with difficulty; keep clear.			Lima	LEE-mah	You should stop your vessel immediately.
	Echo	ECK-ah	I am directing my course to starboard.			Mike	MIKE	My vessel is stopped; making no way.
	Foxtrot	FOKS-trot	I am disabled; communicate with me. On aircraft carriers: Flight Operations underway.			November	na-VEH-bar	No or negative.
	Golf	GOLF	I require a pilot.			Oscar	OSS-ah	Man overboard.
	Hotel	hoh-TELL	I have a pilot on board.			Papa	pah-PAH	All personnel return to ship; proceed to sea (Inport).
						Quebec	kay-BECK	Boat recall; all boats return to ship. Ship meets boats; request clearance to port.

Know Your Flags

that ship is preparing to come alongside. The flag hauled close-up indicates the approaching ship is ready to come alongside. India is always displayed on the side where the upcoming alongside evolution is to take place. The receiving ship also flies India on the appropriate side at the dip, to indicate preparations for taking the approaching ship alongside. The receiving ship then closes up India to show that it is ready to receive the approaching vessel. When the first line is secured between the

two ships, India is hauled down on both ships for underway replenishment. At sea, the Romeo flag is used in place of India. The Romeo flag is red with a yellow cross.

Juliett. When another ship displays your ship's call sign followed by Juliett, that indicates the other ship has a semaphore message for your ship. The hoist remains flying during transmission and is hauled down when the message has been sent.

Mike. The ship having medical guard duty flies the Mike flag, which is a square blue flag having a white X through it.

Oscar. The Oscar flag indicates man-overboard and always is ready to break. It is a two-color flag with the right half being red and the left half being yellow. The color division is diagonal from the upper left corner to the lower right corner.

Papa. A square blue flag with a white square in its center, the Papa flag is a recall flag and is hoisted to indicate that all ship's company ashore should immediately return to the ship.

Quebec. A square, solid yellow flag, Quebec is the ship's small boat recall. When flying alone, it orders all boats to return immediately. If Quebec is flown with one or more numeral pennants, it is recalling the boat(s) having the applicable numerals being flown.

Romeo. In port, the ship having the ready duty flies Romeo. At sea, ships preparing, and ready, for replenishing fly it. Romeo is hauled down when the first messenger is in hand (alongside method) or when the hose is in hand (astern method).

For more information on signal flag use and configurations, refer to ATP 1, vol. 2. ☺

You can e-mail the author at dtidwell@safetycenter.navy.mil.

	Romeo	ROH-me-oh	Preparing to replenish (At sea). Ready duty ship (Inport).	None.
	Sierra	see-AIR-ah	Conducting flag hoist drill.	Moving astern.
	Tango	TANG-go	Do not pass ahead of me.	Keep clear; engaged in trawling.
	Uniform	YOU-nee-form	You are running into danger.	
	Victor	VTK-tuh	I require assistance.	
	Whiskey	WISS-lee	I require medical assistance.	
	Xray	ECKS-ray	Stop carrying out your intentions and watch for my signals.	
	Yankee	YANG-lee	Ship has visual communications duty.	I am dragging anchor.
	Zulu	ZOO-loo	I require a tug.	

Watch Out for Escape

By FCC (SW) Barry G. Hardman

A ship—pierside in homeport—just had completed a main-space fire drill, and word was passed to re-stow all gear. However, word had not yet been passed to set modified material-condition Zebra.

A petty officer second class, whose GQ station was in the close-in weapons system (CIWS) mount-22 equipment room, wanted to get a “jump” on setting modified Zebra in his spaces. The route to and from the equipment room passed through the escape trunk (the trunk covered six decks from top to bottom) of main engine room (MER) 2. The trunk has hinged deck-gratings at major platforms.

During the past four years, this Sailor had become quite familiar with the route through the trunk to his space. Thus, after exiting the CIWS equipment room following GQ, he climbed 15 feet down the escape trunk and exited through a water-tight door (WTD). He didn’t notice fire-party members had left “up” the hinged grating after completing the drill.

The petty officer made his modified-Zebra report to central control and began to return to his space. He opened the WTD to the MER 2 escape



This is the “guilty” quick-acting water-tight door: The mishap victim stepped through it to return to his space and fell four decks. The grating is shown in its normal down position.



The grating is shown in its up position, as it was left following the drill. It should have been returned to its down position



This is the grating’s normal position. Unfortunately, it wasn’t returned to this position when the fire party left the space after GQ had ended.

Trunk Gratings!



Looking up from where the mishap victim landed, one can easily see how far he fell. The grating—in its down position—is visible.

trunk and stepped in, expecting to set foot on the safety grating. He either forgot (or maybe hadn't noticed when exiting the trunk to make his report to central control) that the grating was up, and he fell four decks (30 feet) down the trunk.

“Medical emergency, medical emergency! Medical-response team provide to the main engineroom!”

Fortunately, the Sailor never hit a bulkhead or any other obstructions during his fall and was able to land on his feet. Though this landing probably saved his life, his injuries were severe: fractures to his right heel, left ankle, right foot and lumbar spine. He became a permanent loss to his command and is on limited duty.

Several lessons can be learned from this mishap, but none of them are new.

First, always look where you are going. This Sailor would not have been injured had he practiced situational awareness and paid closer attention to his environment, such as noticing the hinged safety grating was up. Since he had traveled this route for four years, his familiarity with it



This is looking down from the door through which the mishap victim stepped and fell (the lower half of the door opening is visible in the top of the photograph).

made him complacent, and he was less than 100-percent aware of his surroundings and his actions.

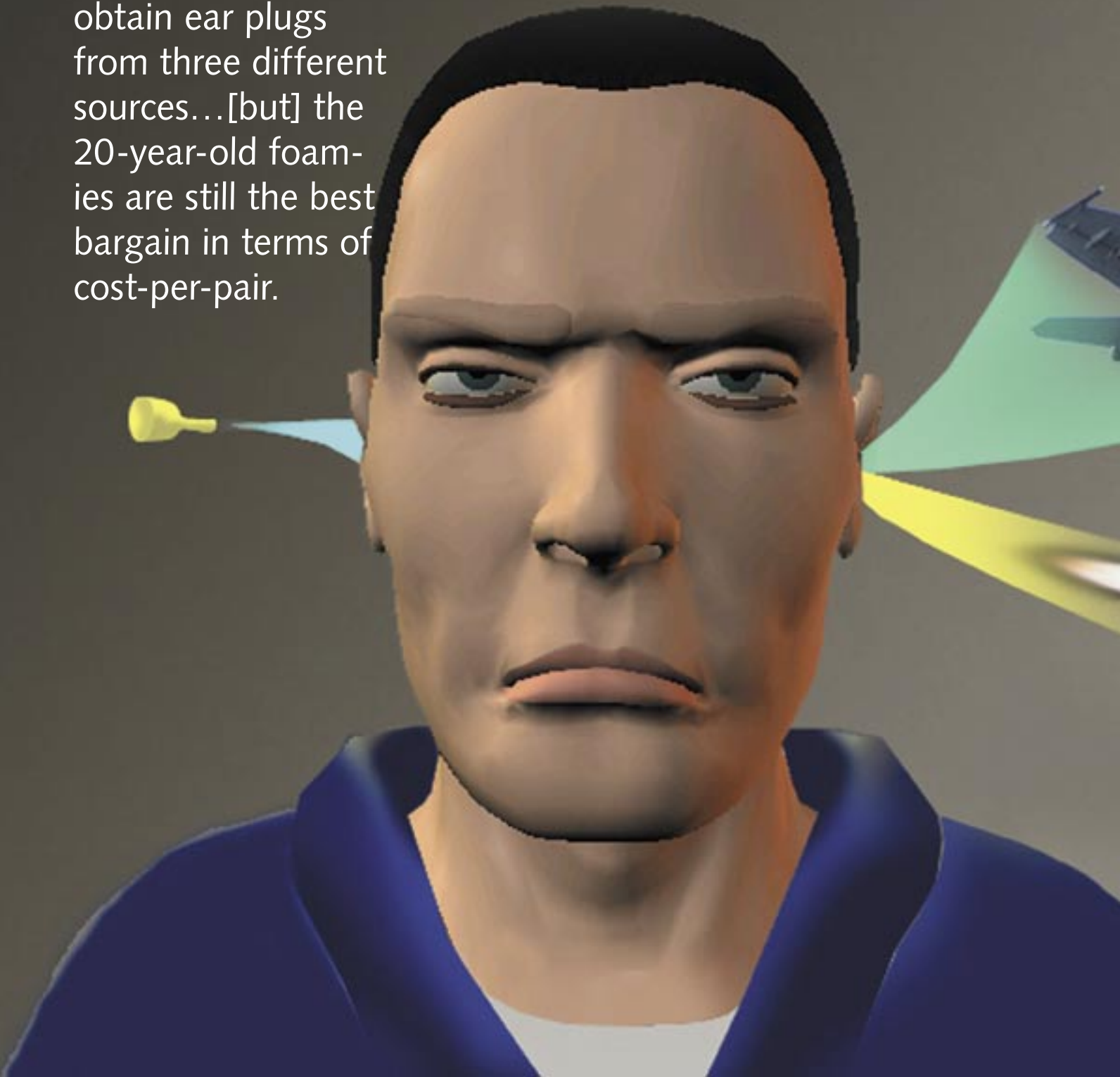
Second, safety-related equipment always must be returned to the primary position for which it was designed. The hinged gratings were installed to offer easy passage across the escape trunk and were meant to be left in the down position. However, the hinged design enabled them to be folded up to provide unimpeded escape up the trunk from MER 2. The fire party's failure to properly re-stow, or put down, the grating created the unsafe condition that led to a shipmate's injuries.

A third lesson is that training-team members must monitor an entire training environment to avoid or—if necessary—to correct potentially hazardous situations. Training team members cannot always be everywhere, but they constantly must be aware of changes and should monitor all areas of the ship a drill affects.

Take your time, look where you are going, and—if you're a supervisor—actively supervise your people, especially during and after a drill. Also take it to heart when the word is passed, “Re-stow all gear.” ☺

New Ear Plugs *Are* Now

The fleet now can obtain ear plugs from three different sources...[but] the 20-year-old foamies are still the best bargain in terms of cost-per-pair.



Available



Illustration by DM1(AW) Eulogio Devera, USS *Nimitz*

The fleet now can obtain ear plugs from three different sources, depending on how quickly the ear plugs are needed and availability. While each type of plug has unique features, the 20-year-old foamies are still the best bargain in terms of cost-per-pair.

The Navy Environmental Health Center's hearing conservation team has found an acceptable alternative to the 20-year-old Navy standard, foam ear plugs. The new plugs are available through the supply system.

The replacements are described as universal-fit, polyvinyl chloride (PVC) ear plugs and come as two-color (orange-green), disposable ear inserts. The orange portion is inserted and, when properly done, only the plug's green portion is visible. The manufacturer, New Dynamics, is marketing them under the Sound Guard name.

These two-color plugs can be ordered with national stock number (NSN) 6515-00-137-6345. They come in dispenser boxes of 200 individually boxed pairs, and a case of 1,000 sells for \$185. When correctly worn, the plugs have a 19.1-decibel noise-reduction rating.

During evaluation, these universal-fit plugs really did not provide adequate protection for some people—the plugs were too large or small for some ear canals. The hearing conservation team, therefore, suggested two substitute, PVC foam-based plugs. These plugs are marketed directly by Tactical and Survival Specialties, Inc., since the plugs are not standard stock items. They can be ordered through GSA, using contract number GS-07F-9123D and the respective part numbers. For small ears, the part number is 1241-310-1009 and the nomenclature is EAR classic superfit-30. A case of 2,000 pairs costs \$240. For large ears, use part number 1241-310-1008 and nomenclature EAR classic superfit-33. These plugs also come with 2,000 pairs per case, which costs \$252.

These new plugs and substitutes for small or large ear canals feature wearing ease, availability, and water-resistant material to reduce contaminant-absorption. They also meet ANSI and OSHA standards, making them attractive alternatives. However, new foamies are not cheap. The 20-year-old standard foam ear plugs still cost less and, when correctly worn, still can be as effective as newer replacements.

The standard, universal ear plug ordering information is NSN 6515-01-137-6345 and nomenclature of Foam Plastic Ear Plug. A case of 4,000 pairs costs \$288. The cost savings averages five cents per pair of old foam plastic ear plugs when compared to the cost of newer plugs. The standard ear plug also has a higher 29-decibel noise-reduction rating. ☉

Sometimes It's the

By Steven R. Southard,
Naval Sea Systems Command Deep Submergence Branch

Twelve-fifteen p.m. on Oct. 16, 1968, seemed like a fine time for a dive. Winds were westerly and light, and seas were moderate. The men aboard the research vessel *Lulu* had confidence in their equipment, resulting from their considerable experience with its use.

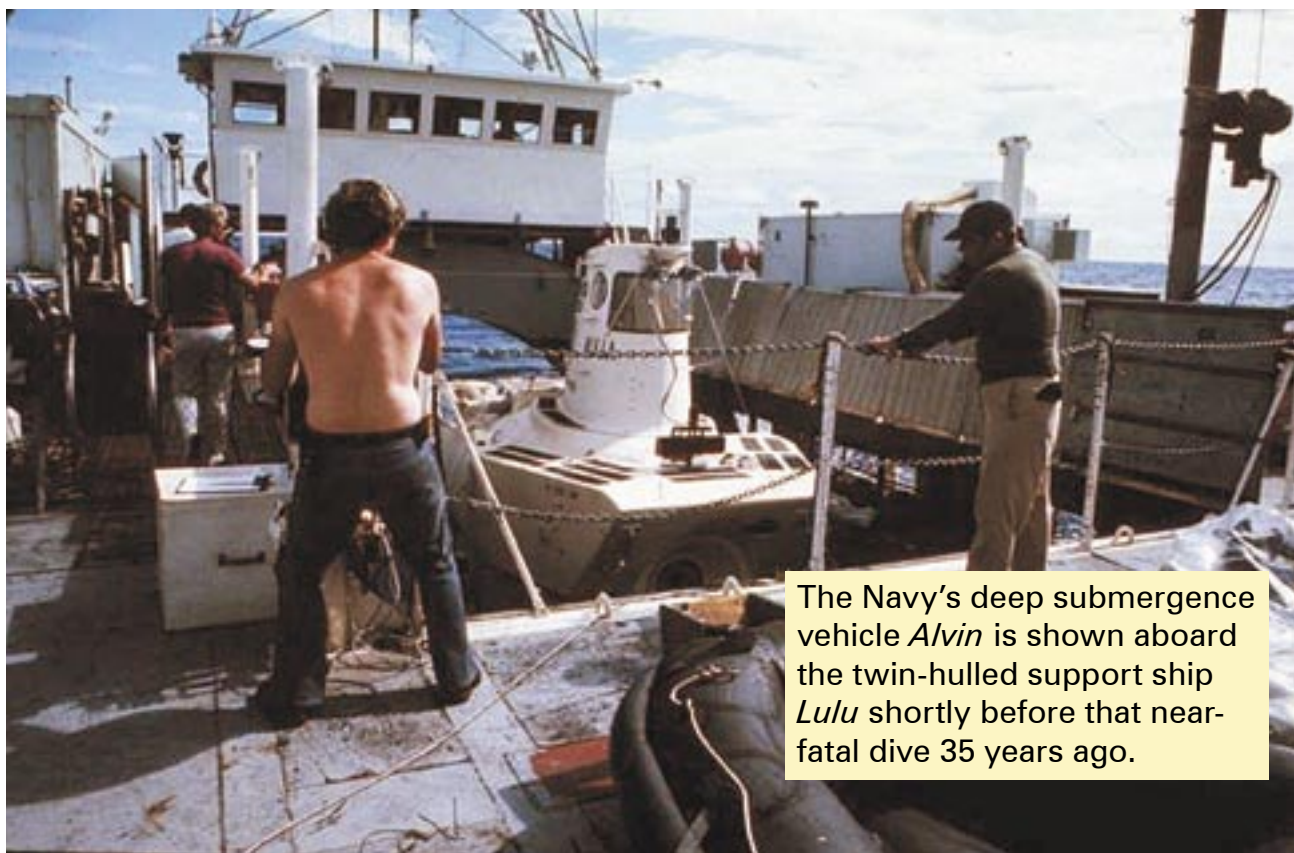
Neither confidence nor experience would help them that day.

Lulu and her civilian crew were operating some 120 nautical miles southeast of their home at Woods Hole, Mass. *Lulu* was a makeshift, twin-hulled support ship, and she carried the deep submergence vehicle *Alvin* [owned by the Office of Naval Research (ONR)]. Well-known today for pioneering work on the HMS *Titanic* and geothermal vents, *Alvin* earlier had earned fame when it located and helped recover a dropped hydrogen bomb off the coast of Almeria, Spain in 1966.

Woods Hole Oceanographic Institute (WHOI), a private organization, operated the submersible.

At 12:15, operators prepared for dive No. 308, the day's second dive. They had aborted an earlier dive because of an electrical ground in an external camera. After technicians made repairs, the submersible's crew readied their craft for the dive. Their mission was simple: Inspect a submerged buoy-array containing scientific measuring equipment.

Aboard *Alvin* were pilot Ed Bland, scientist Paul Stimson and observer Robert Weaver. Stimson and Weaver crouched inside the cramped, two-meter-diameter, steel, spherical pressure hull, while Bland directed launch activities from the sail. The hatch was open, following standard procedures of that time. *Alvin* rested on a cradle, supported at its four corners by thick, aluminized steel



The Navy's deep submergence vehicle *Alvin* is shown aboard the twin-hulled support ship *Lulu* shortly before that near-fatal dive 35 years ago.

Simple Things . . .



A year after sinking, *Alvin* comes to the surface, having been recovered by the privately owned submersible *Aluminaut*. The craft was refurbished and continues to serve the Navy.

cables. The cables, in turn, wound around large steel drums, which were controlled hydraulically.

Operators had lowered the cradle about a foot when both forward end cables parted almost simultaneously. A hydraulic line in the port winch motor ruptured at about the same time.

Alvin slid off her cradle and briefly submerged. When she bobbed back to the surface, Bland leaped to safety, but Stimson and Weaver had to scramble through the small hatch while sea water was pouring in. Fortunately, minor cuts and bruises were the only injuries sustained. Line handlers struggled for about a minute to keep the 14-ton submersible on the surface, but the weight of inrushing water proved too great, and *Alvin* plunged to the bottom in 5,000 feet of water.

An independent committee's investigation concluded the sequence of events was caused by:

- poorly maintained lift cables,
- poorly designed drum, sheave, and fair leads,
- contaminated and unfiltered hydraulic fluid,
- uneven loading on the lift cables, and
- hazardous launch procedures.

Three contributing factors were design problems; one was maintenance-related, and one was

a procedural problem. The relevance of hydraulic-fluid contamination to the casualty becomes apparent when examining the committee's assessment of the probable course of events. They concluded the forward port cable parted first. Poor maintenance had allowed the cable to rust and fray, deteriorating its strength. When it parted, the load transferred to the forward starboard cable, which likewise exceeded its breaking strength. When the cradle holding *Alvin* tipped downward, one of the operators inadvertently moved the hydraulic control valve to "lift," causing a high-pressure transient in the line. A hose connection, deteriorated by seawater, then burst. The committee did not blame the control operator for his action.



A camera from the submersible *Aluminaut* looks down on *Alvin* as the submersible rests on the ocean bottom almost a mile below the surface.



Quite a catch! *Alvin* is shown on the surface in a retrieving net upon recovery after spending a year on the ocean bottom almost a mile down.

Approximately a year after *Alvin*'s plunge to the bottom, the privately owned submersible *Aluminaut* raised her to the surface.

All deep-submergence systems owned or operated by the Navy are certified in accordance with Naval Sea Systems Command SS800-AG-MAN-010/P-9290, System Certification Procedures and Criteria Manual for Deep Submergence Systems. Following the *Alvin* mishap, NavSea revised this manual to include certification of man-rated, deep-submergence-system handling equipment. WHOI engineers redesigned *Alvin*'s handling equipment, upgraded maintenance standards, and revised the handling procedures to emphasize safety.

Since her recovery, *Alvin* has chalked up a commendable safety record while providing scientists and the public with numerous discover-



With things back to normal and after being overhauled following its recovery, *Alvin* continues to serve the Navy and is shown operating in its environment: the ocean depths.

ies and stunning pictures from the ocean depths. Ironically, manned descent down to thousands of feet wasn't the hazard that day in 1968—instead, danger lay in the simple, low-technology task of handling a small craft on the surface.

Sometimes, the simple things get you into trouble... ☹

Alvin's mishap on dive no. 308 didn't kill anyone, but two other deep-submersible mishaps during the past three decades had more tragic endings. Their stories are coming in future editions of *Fathom*.

On June 17, 1973, four men were operating the privately owned submersible *Johnson Sea Link*. That vessel had safely completed 129 dives but on this day, it became entangled in wreckage 360 feet down on the sea bottom. By afternoon of the next day, when a salvage vessel was able to raise the submersible, some crew members had died.

On Jan. 16, 1982, USS *Grayback* (SS 574) was conducting routine dive-training operations, and inside one of the boat's two large diving chambers, six divers awaited re-entry into the submarine. They lost consciousness when a vacuum was created during an improperly conducted chamber drain-down process, ending in tragic consequences.

The Navy continues to work with civilians with deep submergence systems at sea. Like with *Alvin*, *Johnson Sea Link*, and *Grayback*, these people are familiar with their equipment and—in most cases—have dived safely for years. But mishaps still can happen. What, if anything, is different? Certainly, the Naval Sea System Command's certification process is more rigorous, and NavSea's design methods have improved. Maintenance standards are tougher.

Read about the tragedy aboard the *Sea Link* in our October-December 2003 issue. In the January-March 2004 edition, you'll read about the diving tragedy aboard the USS *Grayback* (SS 574).

You'll also read on how deep sea submersible work is continuously improving with technology and how safety is at the forefront with the men and women who work at the ocean's depths. ☺

Confucius Says

By CWO4 Tony Evans,
Naval Safety Center

The great Chinese sage, Confucius, retired from active preaching in his last years and settled in his native village. Some vacationing university students came to his village during this time, and the students flaunted their intelligence by daily arguing with Confucius.

Every time, the sage would outwit them with his wisdom. One scenario the university students brought to the sage follows:

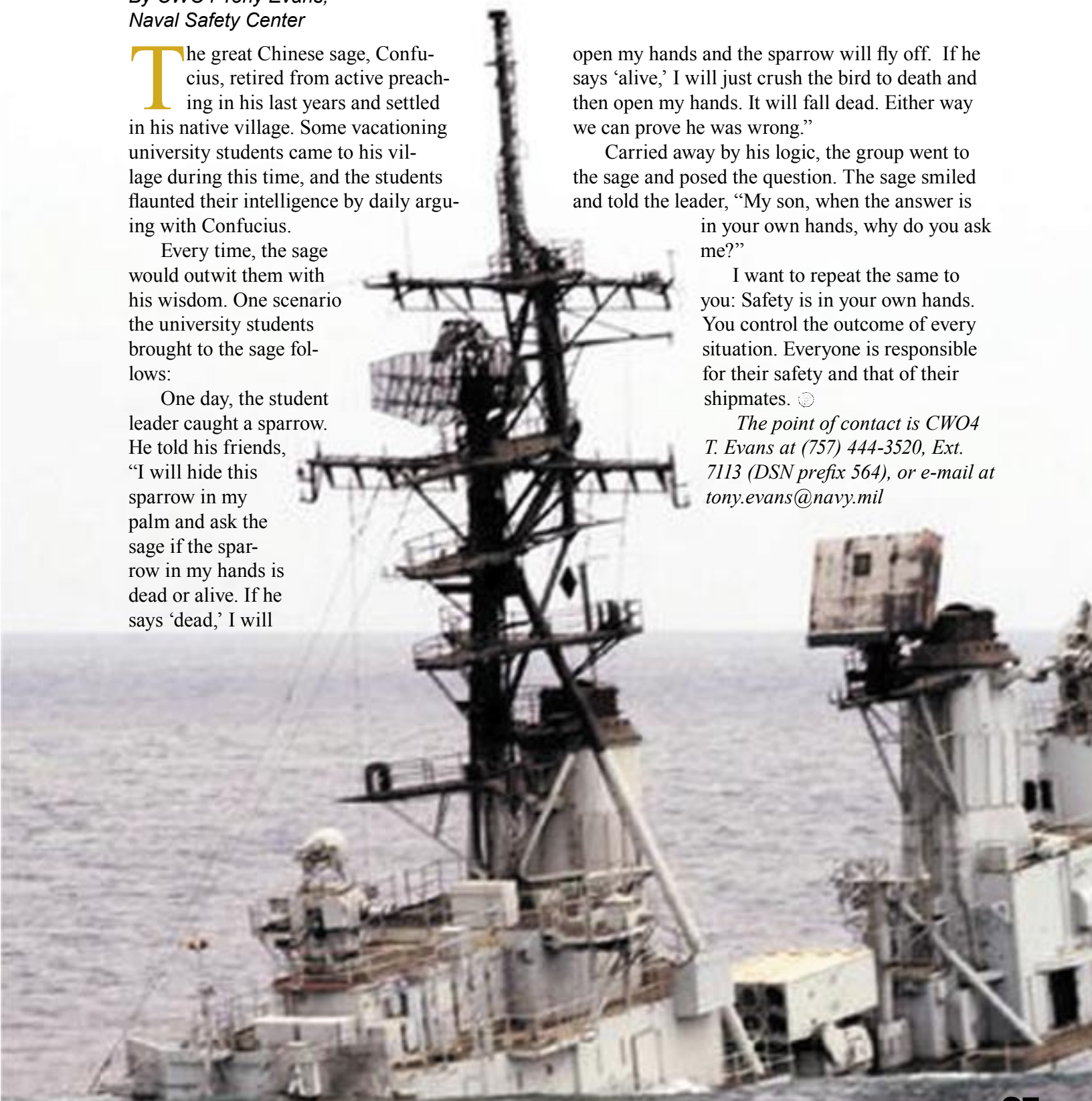
One day, the student leader caught a sparrow. He told his friends, "I will hide this sparrow in my palm and ask the sage if the sparrow in my hands is dead or alive. If he says 'dead,' I will

open my hands and the sparrow will fly off. If he says 'alive,' I will just crush the bird to death and then open my hands. It will fall dead. Either way we can prove he was wrong."

Carried away by his logic, the group went to the sage and posed the question. The sage smiled and told the leader, "My son, when the answer is in your own hands, why do you ask me?"

I want to repeat the same to you: Safety is in your own hands. You control the outcome of every situation. Everyone is responsible for their safety and that of their shipmates. ☺

The point of contact is CWO4 T. Evans at (757) 444-3520, Ext. 7113 (DSN prefix 564), or e-mail at tony.evans@navy.mil



Electrical Safety Awards Keeps Sailors Safe

By JO2 Mark Elrod,
USS Kitty Hawk Public Affairs Office

Navy shipboard electrical safety programs play key roles in keeping Sailors out of harm's way. This is especially true aboard USS *Kitty Hawk* (CV 63), as she enters dry dock, known formally as a dry dock ship's restricted availability (DSRA) period.

"Naturally, there is an increased danger during availabilities," said Cdr. Michael McAlpin, *Kitty Hawk's* safety officer. "Our goal during this DSRA is to come out of it with no injuries or deaths."

"The electrical safety program is one tool we have to help us attain this goal," the commander added. "Electrical safety training and knowledge will help minimize injuries from electrical shock, which in turn will ensure all of our Sailors remain healthy and available to do their jobs."

"The electrical safety program is very important, because electricity will not play with you," said EM1(SW/AW) Carlito Soriano, *Kitty Hawk's* electrical safety division leading petty officer. "If you don't have knowledge about electricity, or you are not following procedures, it could kill you."

Kitty Hawk's electrical safety program's foundation comes from three documents: OpNavInst 5100.19D, *Kitty Hawk* instruction (HawkInst) 5101.2V, and the Naval Ships Technical Manual.

All three are available to ship's company on the carrier's intranet. Collectively, the three documents delineate command responsibilities and describe all electrical safety program elements. These include working on energized electrical equipment, personal protective equipment to be used and training requirements.

Kitty Hawk's electrical safety program is not just for Sailors who work with electrical or electronic equipment, according to Cdr. McAlpin.

"Everyone is exposed to potential electrical hazards every day," he said. "From an operations

specialist using a buffer to shine his deck, to the electrician's mate repairing a power panel, we all have to be aware of how we can get hurt by electricity."

One way to make sure the crew knows how to remain safe is by educating newly reporting Sailors about electrical safety, according to Petty Officer Soriano.

Everyone reporting aboard attends an electrical safety familiarization session as part of the command indoctrination course. This session is the first step for practicing electrical safety aboard *Kitty Hawk*, he said.

"As in all other safety-related programs, this [electrical safety education] is an all-hands evolution," stated Cdr. McAlpin. "The safety department has only thirteen people. We cannot be everywhere every day, so we rely on all to be on the lookout for hazards and report them to us, to their supervisors or to the command duty officer for resolution."

Some common hazards that may be encountered include electrical power tools lacking safety checks, damaged electrical tools and their cords, and power cords that have been run through doors and hatches and could be damaged when those doors or hatches are closed on them, according to the commander.

Other potential hazards for which Sailors have to be on the lookout include open electrical junction boxes and exposed cables, added Cdr. McAlpin. "With all the repair work, cleaning, removal and installation of equipment, we have to remain vigilant to electrical hazards, such as dead-ended cables and unsecured power sources."

"It's everybody's responsibility to be safe," emphasized Petty officer Soriano. ☺



areness

ICFN Jason Kraver troubleshoots a faulty component on an over-speed trip-panel circuit-card from the No. 4 main machinery room aboard USS *Kitty Hawk* (CV 63). Electrical safety is constantly emphasized aboard the forward deployed aircraft carrier, whose homeport is Yokosuka, Japan.

Photo by PH3 Jo Wilbourn

Questions



Editor's Note: Following are fleet questions e-mailed to the Naval Safety Center's Afloat Directorate, with each question followed by our response. Individuals who requested the information have received responses, and Fathom is publishing the questions and responses for other fleet units who might be searching for similar information. Send afloat questions to <http://www.safetycenter.navy.mil/afloat/feedback.htm>.

I am writing for information about InSurv message 060720Z June 02, which addresses telescopic guards for drills. Our drill press was made in 1964, and its tech manual has no info about telescopic guards. We have InSurv coming up and would appreciate any information about if the guards are intended for the 18-inch Buffalo floor drill.

All drill presses are required to have safety guards. The telescopic guard was selected because it is easy to install. Retrofits for your drill press can be bought through Rockfort Systems by calling (800) 922-7533.

The Naval Safety Center point of contact is LCdr. Walter Banks at (757) 444-3520, Ext. 7116 (DSN 564) or e-mail walter.banks@navy.mil.

I have been gathering information about shipboard-authorized coffee makers: It seems all such authorized coffee makers cost \$500 or more. Many offices aboard my ship really do not need such an expensive coffee maker. Are there any alternatives to these expensive coffee makers, and, if so, can they be used aboard ship?

Shipboard authorized coffee makers can be found in NavSup Pub 533 (Shipboard Food Service Equipment Catalog) and in the Afloat Shopping Guide (Section 3, Group 73). These publications should be available in your ship's Supply Department. Not all coffee makers cost \$500 or more. Following are two coffee makers in the Afloat Shopping Guide which cost less than \$500.

NSN 7310-01-111-4853, COG 9Z, U/I EA, Price \$415.10
NSN 7310-01-144-4707, COG 9Z, U/I EA, Price \$105.84

However, once you get a coffee maker don't forget to submit your chit authorizing shipboard use of electrical equipment. Also remember to have your coffee maker safety-checked and properly tagged.

The Naval Safety Center point of contact is EMC(SW/AW) Manuel P. Carretero at (757) 444-



From the Fleet



3520, Ext 7126 (DSN 564), or via e-mail at manuel.carretero@navy.mil.

I am requesting information on the shipboard Gaylord system. Is it possible to run fryers, grills, ovens and steamers without the Gaylord system running correctly? What NSTM would I look under?

As with any malfunctioning equipment and safety devices, you must repair equipment before operating it. Since a Gaylord system operating at less than 100 percent is a safety-related issue, you will have to submit a formal job request (4790/2K) through normal source-routing and check block 15 to inform everyone this is safety-related. Your commanding officer must approve continued system operation without fully operational safety features in place. If your equipment is operated with the noted problems, the XO, chief engineer officer, DCA, and supply officer also must be informed. Backup firefighting capabilities must be in place, along with a temporary standing order clearly spelling out how to operate your systems with its installed safety features not being fully operational. Everyone working in this area during the equipment operation must fully understand you are operating outside of standard operating procedures. They also should be trained in using backup firefighting equipment in case of a fire. A recent

shipboard galley fire in the deep fat fryers resulted in minimum damage because the system worked.

NSTM 555-8.4.1 states fires in deep-fat fryers generally result from overheating of cooking oil and fats, and subsequent self-ignition of the fat. Fires involving cooking oils and fats are class bravo fires. Most fires occurred while fryers were operating unattended, either because operators left the area, or didn't secure the units after use. Factors contributing to fire intensity and its spread include delayed fire discovery, grease-laden ducts and hoods, and splashing and overflow of burning fat by a straight stream nozzle pattern discharged directly onto the fat liquid surface. Your system must be repaired as soon as possible: Remember your ORM training.

I recently had a safety inspection and request guidance on electrical workbenches. Specifically, I would like information on what constitutes an electrical workbench.

Electrical-electronic workbench information can be found in NSTM 300, appendix H, and PMS





MIP 6652/006 (MRC C4UZ, annual), GSO 665, and GenSpecs section 665a. An electrical-electronic workbench is one specifically designated for work and testing of any electrical or electronic components while those components are energized and the equipment from which they come is disassembled. Personnel safety is of utmost concern while working on any energized equipment or on any of its components, and workbench requirements in the aforementioned instructions are inclusive enough to cover all workbench areas.

As for what constitutes an electrical workbench: The answer is in NSTM 300-H.1.1. Following is the pertinent paragraph:

GENERAL. "Electrical/electronic workbenches are used to work on energized electrical and electronic equipment. They are used individually and in workshops such as electrical repair, AIMD, electronics, avionics, and calibration. Personnel safety is of primary concern during maintenance on energized equipment. The workbenches are insulated from the top working surface and below to reduce the shock hazard to maintenance personnel."

The Naval Safety Center point of contact is EMC(SW/AW) Manuel P. Carretero at (757) 444-3520, Ext. 7126 (DSN 564) or via e-mail at manuel.carretero@navy.mil.

I am ordering approved electrical safety boots—how can I get the stock numbers?

The NSN for approved electrical safety shoes are on the Naval Safety Center website: <http://www.safetycenter.navy.mil/afloat/industrialhygiene/downloads/shoppingguide.doc>.

For your convenience, following are the available different shoe sizes and the last four numbers of their respective NSNs.

The proper nomenclature is: Shoes, electrical hazard protection, oil resistant, protection to 600

volts, safety box toe, high blucher-style, black leather. The common NSN (except the last four numbers) is 9T/8430-00-611-XXXX, the unit of issue is EA (although you are buying a pair of shoes, not ordering each individual shoe), and the cost per pair is \$56.75

Size	X-narrow	Narrow	Reg.	Wide	X-wide
4			-8314	-8315	-8322
4½			-8324	-8327	-8329
5	-8330	-8331	-8332	-8334	-8648
5½	-8338	-8342	-8344	-8345	-8349
6		-8364	-8366	-8368	-8380
6½		-8549	-8655	-8663	-8673
7		-8674	-8675	-8676	-8681
7½		-8682	-8684	-8694	-8696
8		-8699	-8701	-8706	-8718
8½		-8725	-8727	-8734	-8736
9		-8744	-8747	-8753	-8755
9½		-8763	-8774	-8775	-8776
10		-8777	-8778	-8779	-8780
10½		-8781	-8782	-8784	-8785
11		-8786	-8813	-8814	-8816
11½		-8817	-8822	-8830	-8832
12		-8834	-8835	-8836	-8837
12½		-8432	-8464	-8465	
13			-8493	-8509	
13½			-8626		
14			-8633	-8641	

The Naval Safety Center point of contact is EMC(SW/AW) Manuel P. Carretero at (757) 444-3520, Ext. 7126 (DSN 564) or via e-mail at manuel.carretero@navy.mil





BM1 Von Vaughn of Explosive Ordnance Disposal Mobile Unit Six (EODMU-6) practices recompression chamber procedures under the supervision of HM2 Michael Brown aboard the fleet ocean tug USNS *Catawba* (T-ATF 168) before a dive in the Arabian Gulf. The recompression chamber enables divers to be readily treated on-site for decompression sickness (the bends) and pulmonary over-inflation syndrome (POIS) and arterial gas embolism (AGE).

Photo by PH1 Arlo K. Abrahamson

